

## **3.7 FISH AND AQUATIC HABITAT**

### **3.7.1 SCOPE OF ANALYSIS AND ANALYSIS METHODS**

The Code of Federal Regulations (CFR), Title 36, part 212 (Travel Management) notes that the Responsible Official shall consider effects on forest resources, with the objective of minimizing those effects (CFR 36.212.55(b)(1)). The scope of this project is to designate roads and trails for motorized and mechanical transport use. The scope of the fisheries analysis includes a review of the impacts of the existing condition and the impacts that may occur as a result of maintaining or changing the designation of motorized and mechanical transport use on selected Forest roads and trails.

The geographic boundary of the analysis area for the fish and aquatic habitat analysis is the Bitterroot River watershed. This area includes the entire Bitterroot National Forest in Montana. The cumulative effects analysis area includes lands within the Bitterroot watershed including those lands owned by private individuals or corporations, and those managed by other State and Federal agencies, including part of the Lolo National Forest (the Lolo Creek watershed).

As a measure to compare alternatives, the fisheries analysis uses the miles of open roads and motorized trails within 100 and 300 feet of streams classified as “perennial” on the National Hydrography Dataset (<http://nhd.usgs.gov/index.html>). Dispersed camping, and motorized wheeled access for accessing dispersed campsites, especially where it occurs along streams, is also discussed in each alternative. This analysis focuses on impacts to native fish, particularly bull trout and westslope cutthroat trout, and the western pearlshell mussel that was recently listed as a sensitive species. It also considers the effects to streams that are not fish-bearing as they also provide aquatic habitat for other species.

### **3.7.2 REGULATORY FRAMEWORK**

One of the Bitterroot National Forest Plan’s goals requires habitat be provided to support viable populations of native and desirable nonnative fish (USDA 1987a, II-3). The Forest-wide management objectives for fisheries are to “Maintain or enhance fish habitat by maintaining riparian habitat and its potential to replace woody debris; minimizing the miles of road needed for management; requiring high standards for road construction and maintenance; reducing sediment from existing roads... .” (USDA Forest Service 1987a, II-5). And, one of the management objectives for water resources is: “Manage riparian areas to prevent adverse effects on channel stability and fish habitat” (USDA Forest Service 1987a, II-6).

Forest-wide management standards state that the habitat needs of sensitive species and protection of threatened and endangered species need to be considered in all project planning (USDA Forest Service 1987a, II-3 and II-21). In the Bitterroot River drainage, bull trout have been listed as a threatened species under the Endangered Species Act of 1973 (as amended), and westslope cutthroat trout (WCT) and the western pearlshell (WPS) mussel have been designated as sensitive species by the Regional Forester {Project File folder ‘fisheries,’ Project File documents FISH-013 and FISH-014.pdf}. The WCT has been petitioned for listing under the Endangered Species Act, but the determination was that WCT did not warrant listing (USDI Fish and Wildlife Service 2003).

The Forest Plan also designated WCT as a management indicator species (MIS) for assessing management’s impact on the fishery resource (USDA 1987, II-20). The CFR, Title 36 (Planning): parts 219.19 (Fish and Wildlife Resource) and 219.27 (Management Requirements) state that MIS will be identified by each National Forest in order to maintain adequately distributed habitat, and to evaluate the impacts of management activities on these species and species they represent.

The Inland Native Fish Strategy (INFISH 1995) amended the Bitterroot Forest Plan. The INFISH amendment established additional Forest-wide standards to provide protection for native trout. It also defined Riparian Habitat Conservation Areas (RHCAs), which are portions of watersheds where riparian-

dependent resources receive primary emphasis. The INFISH amendment (1995), pages A7 and 8, lists five standards and guidelines that pertain specifically to road management (RF-1 through RF-5). The degree to which the Travel Management Planning Project addresses these standards and guidelines is detailed in Section 3.7.5 of this document.

A biological assessment (BA) is required by the Endangered Species Act of 1973 (as amended) to determine whether proposed actions may affect listed species (bull trout) and designated critical habitat. The BA for this project was completed in January 2010, and was sent to the U.S. Fish and Wildlife Service (USFWS) for their review {Project File folder ‘fisheries,’ Project File document FISH-004.pdf}. The USFWS replied to the BA with a biological opinion (BO) in February, 2012 {Project File document FISH-011.pdf}. In their BO, the USFWS concluded that the implementation of the proposed project is not likely to jeopardize the continued existence of the bull trout in the West Fork Bitterroot River and Bitterroot River core areas or the coterminous listing of bull trout. The BO also states that the actions as proposed are not likely to destroy or adversely modify bull trout critical habitat. This is based on information provided in the January, 2010 biological assessment, additional information received on July 26, 2010, February 2, 2011, telephone conversations, electronic mails, and other sources of information.

The biological evaluation (BE) for WCT and WPS Mussel has been completed for this project. The BE is required by the Forest Service Manual for these two sensitive species. The BE is incorporated into this document (Section 3.7.5).

### 3.7.3 AFFECTED ENVIRONMENT

The waters within the Montana portion of the Bitterroot National Forest are occupied by six native fish species and at least four non-native fish species. The native species are bull trout (*Salvelinus confluentus*), westslope cutthroat trout (*Oncorhynchus clarki lewisi*), mountain whitefish (*Prosopium williamsoni*), longnose sucker (*Catostomus catostomus*), largescale sucker (*C. macrocheilus*), and slimy sculpin (*Cottus cognatus*). One native mussel, the western pearlshell mussel (*Margaritifera falcata*), is also present in a few locations within the Bitterroot River watershed. The common non-native fish species include Yellowstone cutthroat trout (*O. c. bouvieri*), rainbow trout (*O. mykiss*), brook trout (*S. fontinalis*), and brown trout (*Salmo trutta*).

Historically, bull trout likely used the Bitterroot River, all major tributaries, and some of the smaller ones (Montana Bull Trout Scientific Group 1995). Their upstream distribution in streams would have been limited by barrier falls or extensive steep sections of stream. The current distribution of bull trout in the Bitterroot Drainage is broad, but unnaturally fragmented, ranging from Lolo Creek at the north end of the Bitterroot Valley to the East and West Forks of the Bitterroot River at the south end. In the Bitterroot River watershed, the USFWS (2002) described 27 separate subpopulations of bull trout. Many of these subpopulations were essentially isolated headwater populations that developed as an artifact of human-caused fragmentation of the habitat.

Though an improving trend is being realized in the quality of stream habitat for bull trout in some subwatersheds, human population growth and development in the Bitterroot Valley increases the pressure on Forest resources. These pressures, coupled with a legacy of the past century’s road system and stream channel conditions, result in stream channels and native fish populations that are not expected to significantly improve in the foreseeable future (USDI Fish and Wildlife Service 2002).

Westslope cutthroat trout are widespread through the drainages of Bitterroot National Forest, and they exist in most places where they historically resided. However, the larger WCT are much rarer than they would have been historically because the migratory component of their population is constrained by disconnected habitats (e.g. water diversions). The upstream distribution of WCT has been extended by historical and ongoing stocking of the species in some the Forest’s high-elevation lakes. Fish stocking, especially of non-native fish, has compromised the genetic integrity of native westslope cutthroat trout.

The two primary factors affecting fish *habitat* in the Bitterroot River drainage are removing water from streams and the Bitterroot River for irrigation systems (dewatering), and the effects of roads (USDI Fish and Wildlife Service 2002). There are 57 miles of roads open to motorized travel within 100 feet of streams, and 187 miles of road within 300 feet of streams.

Nearly all of the streams in the Bitterroot Valley are used for irrigation. In the summer, several of the streams in the north half of the Valley are practically dry before reaching the river. Dewatering reduces the amount of habitat and the connections between habitats that fish may need to survive.

Watersheds that are currently aquatic strongholds occur in areas of low road density (USDA Forest Service 2002). Quigley et al. (1996) found that the higher the road density, the lower the proportion of watersheds that support strong populations of native trout. On the Bitterroot National Forest, roads directly and indirectly contribute to sedimentation (the production, deposition, or accumulation of sediment) in streams more than any other land management activity (USDI/USDA Forest Service 2001a; USDA Forest Service 2007e). Elevated levels of sediment in stream gravels pose a threat to native and non-native fish in several ways: rearing habitat can be affected by filling of spaces fish use as cover and filling of pool habitat. Additionally, an increase in fine sediment can coat the eggs of fish while they are in redds (stream-bottom nests), and inhibit the exchange of oxygen or entomb the eggs or fry within the gravels.



**Figure 3.7- 1: Large Tree Illegally Cut and Removed from Riparian Area**

Road construction, maintenance, and recreational use in some near-stream areas have destabilized hillslopes and stream banks resulting in erosion, loss of cover and shading, widening and filling of channels, and accelerated lateral migration of channels. Loss or decrease of shading along streams and riparian zones increases stream temperatures.

Roads, where they intersect streams, often inhibit the movement of fish and other aquatic organisms. These habitat alterations have the potential to adversely affect all life-stages of fish, including migration, spawning, incubation, emergence, and rearing. Trails can have the same kind of effects, but generally the system trails are much narrower, were built with much less cut and fill material, and are therefore less consequential than roads from a fisheries perspective.

There are an undetermined number of miles of unauthorized routes on the Forest, which are being used primarily by ATVs and motorcycles. Unauthorized routes are not engineered or constructed to Forest Service standards. They are often located on steep grades or in boggy areas. Due to the lack of consideration for resource effects during their creation, most unauthorized routes are more prone to erosion and sediment production than system routes. However, the Forest Service cannot expend funds to maintain or improve unauthorized routes; maintenance and improvements are intended to address accelerating erosion and sedimentation, to ensure the integrity of travel routes. Consequently, conditions on these routes will continue to deteriorate, as erosion creates deeper ruts and exposes more rocks, resulting in increased sediment production.

Best Management Practices, also termed soil and water conservation practices, have been developed for the Bitterroot National Forest, and have generally been implemented. These minimize short-term impacts on the soil and water resources, and maintain or enhance long term productivity, water quantity, and water quality. Projects focused on the restoration of water and aquatic habitat quality have also been occurring; however, existing channel condition and stability problems are not expected to be significantly corrected at the Forest scale at the rate of restoration project implementation.

Current direction for OHV use permits travel for dispersed camping up to 300 feet off designated roads and trails. This is noteworthy, from a fisheries perspective, because many of the dispersed sites accessed by vehicles are along fish-bearing streams. One of the biggest factors that influences fish habitat is the amount of large wood in streams. Large wood in streams and floodplains contributes to habitat complexity by adding cover, and it maintains features such as pools, gravel bars, and backwater areas. It provides nutrients to streams, as well as substrate for aquatic invertebrate production. The fewer streams the Forest exposes to vehicle access, the more large dead trees will remain in the streams and floodplains for the betterment of fish and other riparian dependent species. For example, several trees including a fir snag more than 30 inches in diameter have been cut along the bank of the bull trout monitoring section of Daly Creek (Figure 3.7-1). The Forest's firewood permit prohibits taking trees in riparian areas. However, illegal woodcutters take the time to remove large, ecologically-valuable trees when access is available to sites that are far enough from frequently traveled roads. It should be noted that the areas available for this activity are limited, because much of the Bitterroot National Forest is too steep, rocky, and forested/vegetated for motorized wheeled cross-country travel.

Dispersed camping, where it occurs along streams, affects some of the best sections of fish habitat in several Forest streams. Dispersed campsites are often located in flat areas, which are also good for fish. The lower-gradient streams allow for more large pools and meandering channels. Examples of these sites can be found in Threemile, Burnt Fork, Willow, Daly, Skalkaho, Tin Cup, Lost Horse, Hughes, Overwhich, and Nez Perce creeks.

Driving to and parking in dispersed campsites affects streams by creating areas with compacted soils. These sites tend to grow native vegetation poorly, and invite noxious weed establishment. They are also prone to erosion, which results in sedimentation. Dispersed campsites often expand beyond their initial small size as the sites are generally not maintained and improperly positioned. Lack of maintenance and improper layout results in sites that are littered with trash or not sloped to drain when it rains, which encourages the next campers to use an adjacent area that is drier and clean. Additionally, areas around dispersed campsites are used as firewood collection sites by campers and illegal firewood gatherers. Also, when vehicles are in streamside areas, there is increased risk of spilled fuel and other contaminants entering the water.

Current direction regarding dispersed camping contained in the 2001 Tri-State Decision states "Site selection must be completed by nonmotorized means and accessed by the most direct route causing the least damage" (USDI/USDA Forest Service 2001b). This wording will be replaced in this document and the Travel Management Planning Project ROD with the following: "Motorized wheeled access for dispersed camping would be allowed in 'corridors' off both sides of the center line of designated roads and trails where resource conditions would permit such use without causing acceptable levels of damage."

Though the original language sounds protective, the most direct route is often a twisting network of roads because of the natural barriers, including thick vegetation, water features, standing and down trees, large rocks, and abrupt topographic changes, between the designated route and the selected campsites. Small roads and trails that lead to the dispersed sites have sometimes become areas of illegal OHV use. For example, fords and small OHV play areas have been recently rehabilitated in Skalkaho, Burnt Fork, and Threemile creeks. Like roads in general, these areas of disturbance may result in bank erosion, loss of cover and shading, widening and filling of channels, and accelerated lateral migration of the stream.

### **3.7.4 ENVIRONMENTAL CONSEQUENCES**

#### **Summer**

##### **A. Effects Common to All Action Alternatives**

All action alternatives keep many miles of roads and trails open to motorized vehicles on the Bitterroot National Forest landscape. Known resource effects associated with roads are:

- Ø Roads directly and indirectly contribute more sediment to streams than any other land management activity.
- Ø Serious degradation of fish habitat can result from poorly planned, designed, located, constructed, or maintained roads.
- Ø Roads have the potential to affect water quality through applied road chemicals and toxic spills.
- Ø Roads directly affect natural sediment and hydrologic regimes by altering streamflow, sediment loading, sediment transport and deposition, channel morphology, channel stability, substrate composition, stream temperatures, water quality, and riparian conditions within a watershed.
- Ø Poor road location, concentration of surface and sub-surface water by cross-slope roads, inadequate road maintenance, undersized culverts, and side-cast materials can lead to road-related mass movements.
- Ø Road/stream crossings can be a major source of sediment to streams resulting from channel fill around culverts and subsequent road crossing failures (Quigley et al. 1997).

Watersheds that are currently aquatic strongholds occur in areas of low road density (USDA Forest Service 2002). Road densities would not change as a result of implementing of any of the action alternatives; this project only changes the roads' designation as being open or closed to motorized vehicles. Road density would not change until the roads are either removed from the landscape or actions are taken to stabilize the roadbeds. However, native fish are likely to benefit from closed roads because road use and road maintenance (e.g., grading) can increase the negative effect of roads on streams. These are addressed further in Cumulative Effects, below.

The use and presence of designated trails are quite different than roads relative to their effect on streams. Designated trails generally have a smaller surface area and, therefore, are generally less prone to adding substantial amounts of sediment to streams. However, a trail with a high amount of disturbance (defined as the removal of forest litter and rutting from use) substantially increases the potential erosion from the trail (Foltz 2006). A complicating factor is that the Forest's designated trails are often also used by hikers, horseback riders, and bicyclists, and determining which use is causing trail disturbance can be difficult. Uses of all types, on poorly planned or poorly maintained trails, can leave trails prone to erosion and transporting of sediment to waterways.

Unauthorized routes were not considered in the road and trail density analyses. Unauthorized routes that were created prior to the 2001 Tri-State Decision would not be open in the action alternatives unless designated as open to motorized use. There is no reliable data to determine the total number and miles of unauthorized routes overall or how many of those are along streams. All action alternatives propose to designate 0.4 miles of an unauthorized, full-size vehicle route, while the miles of unauthorized routes proposed to be designated for ATVs and motorcycle use range from 3 miles to 35 miles, depending upon the alternative. It is estimated that a number of miles of unauthorized routes would be closed. Field observations have been that the effect of closing unauthorized routes should be considered positive, and moderately substantial. Many of the unauthorized routes are narrow, in uplands, partially vegetated, and rarely used. Some lead to dispersed sites along streams, but the routes themselves are often less of an issue than the disturbance that takes place at the destination (streamside camping, illegal firewood cutting, creating new driving paths along streams or wet areas).

Once unauthorized routes are designated, the Forest Service would be able to expend funds on them for maintenance and improvement, which are intended to ensure the integrity of travel routes. Consequently, conditions on the routes would improve, as ruts would be bladed, reducing erosion and sedimentation.

Designating some of the unauthorized routes on the MVUM would likely result in the newly designated trails meeting environmental standards, effectively mitigating aquatic resource concerns. Examples of trail design parameters include positive drainage and stable stream crossings designs, and limits to tread widths and grades. The improvements would require separate NEPA analyses and decisions.

No roads are slated for decommissioning based on this planning process. However, it is logical that roads that are proposed to be closed would be assessed at a later date, and could be removed from the landscape by decommissioning or placing in long-term storage. Removing roads that are affecting streams from the landscape can be beneficial, because even small areas with low road density may play a positive role in conservation of native fish species (USDA Forest Service 2002).

All alternatives would allow motorized wheeled access for dispersed camping off designated routes, though the distance a vehicle is allowed from the designated route would vary by alternative. Several factors suggest a range of minor-to-moderate future increases in motorized wheeled access for dispersed camping and associated effects to fish and aquatic habitat. Most sites that have desirable campsite characteristics have already been established by repeated use, limiting future increases in the number of motorized routes to access them. Expansion of new and existing sites is expected, but would likely be limited by terrain features including standing and down trees, large rocks, thick vegetation, water features, narrow stream canyons, and abrupt topographic changes. Existing dispersed sites typically have a suitable motorized access route commonly used to get to the site. The Forest has a continuing program of installing barriers to limit vehicle access or gravelling defined access routes where needed to reduce streamside impacts. The Forest will continue to monitor the emergence of new dispersed camping sites that are accessed by motorized vehicles, as well as changes at existing sites. Sites where motorized access routes result in excessive effects to fish and aquatic habitat will be altered or closed.

The total number of sites used for dispersed camping, and associated motorized routes, is expected to increase gradually over time. Firewood cutting following beetle or fire events is expected to open up more access routes to dispersed camp sites.

Mapped dispersed sites would be accessed by vehicles in all action alternatives. Several of these identified dispersed camps are located within RHCAs, and would require a plan for avoiding impacts to native fish to meet INFISH standards RM-1 and RM-2 (see Section 3.7.5 for details) and regular monitoring.

All alternatives would prohibit motorized wheeled access for dispersed camping within 30 feet of any flowing stream, pond, lake, marsh, or wetland. This would slightly-improve conditions along stream sections used for dispersed camping because it would clarify that fords located on non-system routes are illegal, and that vehicles should not be on shorelines. Driving to and parking in dispersed campsites affects streams by creating areas of compacted soils that grow native vegetation poorly, and promote invasive plants. These areas are also prone to erosion, which results in sedimentation to streams.

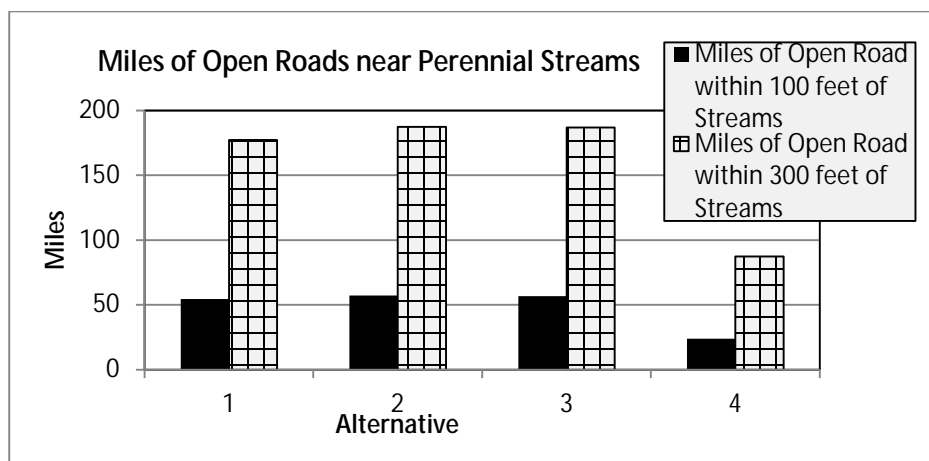
## **B. Direct and Indirect Effects**

The analysis of the effects to fish and aquatic habitat uses the miles of open roads and motorized trails within 100 and 300 feet of streams as indicators (Tables 3.7-1 and 3.7-2). Literature supports the finding that sediment from roads and motorized trails may reach streams from 300 feet, but the effect of roads and trails within 100 feet is much greater (INFISH; USDA Forest Service 1995, A-5). The trend of 100 and 300 feet among alternatives can be seen in Figure 3.7-2. The effect of roads within 300 feet of perennial streams will not be discussed further in the alternative by alternative discussion or in cumulative effects discussion because it would be repetitive.

**Table 3.7- 1: Miles of Open Road within 100 and 300 Feet of Perennial Streams**

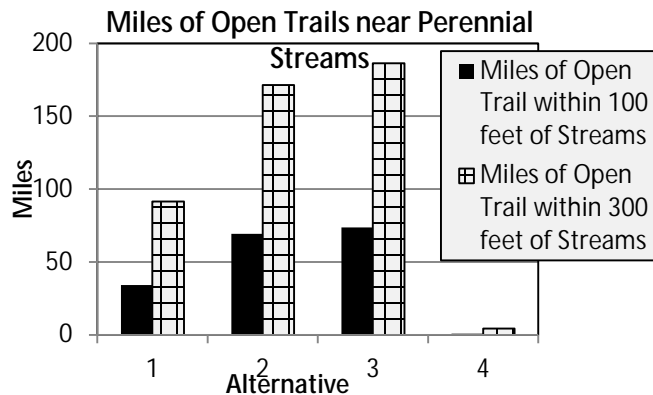
Alternative	Miles of Open Road within...	
	100 Feet of Streams	300 Feet of Streams
1	54	177
2	57	187
3	57	187
4	24	87

**Figure 3.7- 2: Miles of Open Road within 100 and 300 Feet of Perennial Streams**



**Table 3.7- 2: Miles of Open Motorized Trail within 100 and 300 Feet of Perennial Streams**

Alternative	Miles of Open Motorized Trail within...	
	100 Feet of Streams	300 Feet of Streams
1	34	91
2	69	171
3	74	186
4	1	4

**Figure 3.7- 3: Miles of Trail within 100 and 300 Feet of Perennial Streams**

The miles of open motorized roads near streams vary among the alternatives (Table 3.7-1 and Figure 3.7-2), and the differences are discussed in the alternative-specific sections below.

The miles of open motorized trails near streams are very different among the alternatives (Table 3.7-2 and Figure 3.7-3).

The effect of the motorized use of system trails on fish and aquatic habitats among the alternatives is generally much less than a comparable length of roads, and, in general, even a large change in the length of trails near streams (such as a decrease of 51 percent) would have a relatively minor effect on streams and aquatic habitat. This is because the majority of the motorized trails are motorcycle (single track) routes that are much narrower than roads, and were built with much less cut and fill material, which is a potential source of erosion. Trails are also infrequently associated with indirect effects associated with roads, such as near- stream firewood collecting, intensive campsite use along streams, and trash dumping. However, there are short segments of trails, such as crossings of tributaries, seeps, or springs that can be altered and that would have a positive effect on aquatic habitats. These trail alterations that are needed to correct impacts to aquatic habitats are generally relatively minor in cost and disturbance in comparison to fixing road crossings.

The current motorized use on system trails is rarely singled-out as a significant source of impacts to the aquatic species in the analysis area. For example, field observations, such as annual trips along segments of trails in the Sleeping Child drainage (Trails #105, #288, and #84) often include observations of tracks that show trail use by motorized and nonmotorized uses. The minor impacts from the combination of uses are often difficult to assign to one type of use versus the other. That being said, **Alternatives 2 and 3** have the potential to affect more streams should the future amount of motorized use increase substantially. Field observations are that the weather often adds new obstacles (rocks and trees) to the trails, and motorized use of the trails is often inhibited by the rocks and trees that have fallen into trails.

The effect of trails will not be discussed further in the alternative by alternative discussion or in cumulative effects section of this analysis because of the generally low level impact to the Fish and Aquatic Habitat resource.

### **Alternative 1**

Relative to **Alternative 2**, **Alternative 1** contains 2.6 fewer miles of open road within 100 feet of streams. This small difference primarily spread among eight subwatersheds (Table 3.7-3)



**Table 3.7- 3: Miles of Road within 100 feet of Streams within Eight Drainages in Alternative 1, and the Differences Relative to Alternative 2**

<b>Drainage</b>	<b>6th Code Subwatershed</b>	<b>Miles of Road Within 100 feet of Streams</b>	<b>Difference Between Alt. 1 and Alt. 2 (miles)</b>	<b>Road(s) Affected</b>
Overwhich	170102050104	0.23	-0.61	#5703
Upper Sleeping Child	170102050702	0.46	-0.50	#62765, #62766, #74947
Upper Burnt Fork	170102051303	0.19	-0.39	#312
Threemile	170102051503	0.07	-0.30	#640, #13102, #1334
Camp	170102050502	1.10	-0.27	#13340
West Fork Bitterroot	170102050301	1.02	-0.26	#66E
Chaffin	170102050803	0.20	-0.15	#62887, #74996
Daly	170102050901	0.28	-0.13	#5783, # 62617
<b>Total</b>			<b>-2.61</b>	

In the Overwhich watershed, Road #5703, east of its intersection with Road #5706, is proposed to be converted into a seasonal OHV trail. This was proposed during a review of bull trout Critical Habitat. The road's location in the floodplain results in loss of overstory trees and shade. The change proposed in **Alternative 1** has the potential to slightly improve water temperature and habitat complexity.

There would be a positive effect to upper Burnt Fork of the Bitterroot River (Burnt Fork), specifically to the stream reach between the Gold Creek Campground and the trailhead at the end of Road #312. Burnt Fork contains bull trout, and is one of the Forest's most important bull trout streams, especially on the north half of the Forest, where the populations of bull trout tend to be small and isolated. Burnt Fork bull trout are isolated from the river and other populations of bull trout, but the Burnt Fork population is one of the larger populations. Closing the road above the Gold Creek Campground might expedite the future removal of culverts in tributaries of Burnt Fork (i.e. Arasta and Grizzly Creeks), rather than the expensive option of replacing those culverts. Closing would also practically eliminate the illegal firewood collection which has recently resulted in the loss of large streamside trees.

Other road segments (portions of Roads #640, #62765, and #62766) proposed for closure to motorized use in this alternative would result in slightly fewer open roads near streams in the Threemile and upper Sleeping Child drainages. All three closures would each affect less than 0.2 miles of road within 100 feet of streams, but the benefits would extend beyond the areas where the roads encroach on the stream. The closure along Threemile Creek, Road #640, is important to this small westslope cutthroat trout-bearing

stream. This road, and the dispersed camping areas accessed from it, are poorly maintained, and are used by illegal firewood cutters, unpermitted small scale mining, and OHVs that drive through small wetlands.

The closure of portions of Roads #62765 and #62766, which are in the upper Sleeping Child drainage, would result in positive benefits for fisheries in the local area (potentially a mile of improved habitat). A portion of Road #311 would also be closed, which would provide partial protection for a segment of a small fish-bearing tributary of Rye Creek. Indirectly, this closure and others along tributary streams would benefit fish. See the Water Resources Section (3.6.4) for further explanation of affects to streams.

**Alternative 1** proposes to designate about 30 miles of unauthorized routes on the MVUM. About 18 miles would be proposed to be designated as ATV trails seasonally; approximately 1 mile would be designated to be open yearlong. Some of these routes would connect existing roads.

Approximately 10 miles of the routes proposed to be designated for ATVs would not be shown on the MVUM until separate site-specific NEPA analysis and decisions, associated with relocating the routes to more sustainable locations to address rutting and erosion concerns are completed and they exist on the ground.

Additionally, 11 miles of unauthorized routes would be proposed to be designated for use as motorcycle trails: 10 miles would be open seasonally, and 1 mile would be open yearlong {Project File folder 'unauthorized\_trails,' Project File document UAT-003.pdf}.

Once unauthorized routes are designated, the Forest Service would be able to expend funds on them for maintenance and improvements, which are intended to ensure the integrity of travel routes. Consequently, conditions on the routes would improve, as ruts would be bladed, reducing erosion and sedimentation.

For a listing of the unauthorized routes proposed to be designated on the MVUM for **Alternative 1**, please refer to Appendix K to the FEIS.

**Alternative 1** would allow for motorized wheeled access to dispersed campsites within 300 feet of both sides of the centerline of open roads and trails; the corridor would be extended to those sites identified on the maps of the alternatives. Motorized wheeled access would be prohibited within 30 feet of any flowing stream, pond, lake, marsh or wetland. Relative to the existing condition, addition of the 30 foot no-vehicle zone would slightly improve conditions along stream sections used for dispersed camping because it would clarify that fords on non-system roads are illegal, and that vehicles should not be on shorelines. Driving to and parking in dispersed campsites affects streams by creating areas of compacted soils that grow native vegetation poorly, and promote noxious weeds. They are also prone to erosion, which results in sedimentation to streams. Dispersed campsites often expand beyond their initial small size as the sites are generally not maintained or properly laid-out (e.g. sloped to drain when it rains), which encourages the next campers to use an adjacent area that may be less disturbed and clean. Additionally, areas around dispersed campsites are used as firewood collection sites by campers and illegal firewood gatherers. One of the biggest factors that influences fish habitat is the amount of large wood in streams. Fish tend to congregate in the large pools created by large wood. The fewer streams the Forest exposes to vehicle access, the more large dead trees will remain in the streams and floodplains for the betterment of fish and other riparian dependent species.

Also, when vehicles are driven to, and park in, streamside areas, there is increased risk of spilled fuel and other contaminants entering water. Generally, sites out of sight from designated routes are associated with illegal firewood cutting and trash accumulation.

Forest-wide, **Alternative 1** would not substantially change the existing condition. The motorized travel authorized in this alternative would slightly improve conditions in the eight drainages listed in Table 3.7-3. Overall, this alternative reduces the amount of roads within 100 feet of streams by a little less than five percent.

### **Alternative 2 - No Action**

The existing effects of roads and trails on fish and aquatic habitat are described in Section 3.37.3 (Affected Environment).

Changes to the management of motorized travel routes would not occur with the implementation of this alternative. In summary, aquatic habitat conditions would continue to be affected by the use of open roads, especially in areas of extensive road development. An impact of **Alternative 2** is that unauthorized routes that were created prior to the 2001 Tri-State Decision would remain legal to use. These routes are sometimes poorly located on the landscape, and have potentially more impact than the properly designed, maintained, and constructed travel routes.

There would be small and long-term negative effects associated with motorized wheeled access for dispersed camping and dispersed sites themselves on fish in **Alternative 2**. **Alternative 2** would allow for motorized wheeled access to dispersed campsites within 300 feet of both sides of the centerline of open roads and trails. However, the corridor would not be extended to those sites identified on the maps of **Alternatives 1 and 3**. Under **Alternative 2**, if motorized access to sites located beyond 300 feet from roads and trails was established prior to the 2001 Tri-State Decision, then access would remain. Some of these existing sites are located along, and negatively-impact, streams. The lack of a prohibition of motorized wheeled access for dispersed camping within 30 feet from any flowing stream, pond, lake, marsh, or wetland would have a very minor negative effect.

**Alternative 2** does not designate any authorized routes on the MVUM. Consequently, the Forest Service would not be able to expend funds to maintain or improve unauthorized routes; maintenance and improvements are necessary to ensure the integrity of travel routes. Conditions on the routes would continue to deteriorate, as erosion would create deeper ruts and expose more rocks, leading to increased sediment production.

### **Alternative 3**

From a fisheries perspective, **Alternative 3** is practically identical to **Alternative 2**. Positive differences are that **Alternative 3** would treat motorized wheeled access for dispersed camping the same as **Alternative 1**, and a short section of near-stream road, Road #13340, along a tributary to West Fork Camp Creek would be closed. Upper Burnt Fork would be closed seasonally, which would have negligible effect on fish and aquatic habitat.

Compared to **Alternative 2**, the addition of the 30 foot no-vehicle zone in **Alternative 3** would slightly improve conditions along stream sections used for dispersed camping because it would clarify that fords on non-system roads are illegal, and that vehicles should not be on shorelines. Driving to and parking in dispersed campsites affects streams by creating areas of compacted soils that grow native vegetation poorly, and promote noxious weeds. They are also prone to erosion, which results in sedimentation in streams.

***Table 3.7- 4: Miles of Road within 100 feet of Streams within Drainages in Alternative 3, and the Differences Relative to Alternative 2***

<b>Drainage</b>	<b>6<sup>th</sup> Code Subwatershed</b>	<b>Miles of Road Within 100 feet of Streams</b>	<b>Difference between Alt. 3 and Alt. 2 (miles)</b>	<b>Road Affected</b>
Camp	170102050502	1.10	-0.27	#13340

**Alternative 3** proposes to designate 35 miles of unauthorized routes on the MVUM. About 19 miles would be proposed to be designated as ATV trails seasonally; approximately 1 mile would be designated to be open yearlong. Some of these routes would connect existing roads.

About 10 miles of the routes proposed to be designated for ATVs would not be shown on the MVUM until separate site-specific NEPA analysis and decisions, associated with relocating the routes to more sustainable locations to address rutting and erosion concerns are completed and they exist on the ground.

Under **Alternative 3**, 14 miles of unauthorized routes would be proposed to be designated seasonally for use by motorcycles, and 1 mile would be designated for yearlong use {Project File folder 'unauthorized\_trails,' Project File document UAT-004.pdf}.

Once unauthorized routes are designated, the Forest Service would be able to expend funds on them for maintenance and improvements, which are intended to ensure the integrity of travel routes. Consequently, conditions on the routes would improve, as ruts would be bladed, reducing erosion and sedimentation.

For a listing of the unauthorized routes proposed to be designated on the MVUM in **Alternative 3**, please refer to Appendix K to the FEIS.

#### **Alternative 4**

Relative to **Alternative 2**, **Alternative 4** would provide substantially improved conditions for fisheries and aquatic habitat spread across 29 subwatersheds. Twelve of these subwatersheds would have more than a mile of near stream road removed from the MVUM. There would be an approximately 33 mile decrease in the miles of roads within 100 feet of streams with **Alternative 4**, compared to **Alternative 2**.

Forest-wide, **Alternative 4** reduces the amount of road within 100 feet of streams by approximately 50 percent (Figure 3.7-1). This would create a wide-spread positive change to many of the stream segments on and downstream of the Bitterroot National Forest. An indirect effect (later in time) would be a minor decrease in the deleterious effects of roads on streams. Less sediment should reach the streams because there would be less traffic and less frequent road grading needed. In the longer term, stream shading and the amount of large wood in channel may increase as the need for road maintenance is reduced. These improvements to aquatic habitat are expected to be minor because the effect of motorized traffic is only one of the effects that roads have on streams. Closing the road to motorized traffic does not remove the road and its effects from the landscape. Closed roads can also be a liability because they are less frequently reviewed for maintenance needs, such as cleaning culvert inlets, which can lead to increased risk of catastrophic road failures.

There would still be 1,223 miles of motorized routes available: 1,081 miles of roads and 142 miles of trails.

***Table 3.7- 5: Miles of Road within 100 feet of Streams within Drainages in Alternative 4, and the Differences Relative to Alternative 2***

<b>Drainage</b>	<b>6<sup>th</sup> Code Subwatershed</b>	<b>Miles of Road Within 100 feet of Streams</b>	<b>Difference between Alt. 4 and Alt. 2 (miles)</b>	<b>Road(s) Most Affected<sup>1</sup></b>
East Fork Bitterroot - Jennings Camp Creek	170102050503	0.38	-3.83	#723, #311, #727
Nez Perce Fork-Nelson	170102050204	3.33	-2.90	#5644, #732, #5633

<b>Drainage</b>	<b>6<sup>th</sup> Code Subwatershed</b>	<b>Miles of Road Within 100 feet of Streams</b>	<b>Difference between Alt. 4 and Alt. 2 (miles)</b>	<b>Road(s) Most Affected<sup>1</sup></b>
Lake				
EF Bitterroot -Laird Creek	170102050506	1.01	-2.55	#5727, #370, #446
Upper Skalkaho Creek	170102050902	0.07	-2.50	#75, #711
Upper Rye Creek	170102050801	2.15	-2.47	#75, #311
Trapper Creek	170102050304	0	-2.19	#374, #5628
Meadow Creek	170102050404	0	-2.16	#725
West Fork Bitterroot River-Beaver Creek	170102050102	1.43	-2.01	#5669
Willow Creek	170102051006		-1.73	#364, #969, #969a
Lower Rye Creek	170102050802	0.70	-1.65	#321, #13251
Lower Blue Joint Creek	170102050106	0.90	-1.05	#362, #5656, #1303
Camp Creek	170102050502	0.34	-1.02	#8112, #729, #13340
Upper Sleeping Child Creek	170102050702	0.27	-0.69	#62765, #62766, #13234
Moose Creek	170102050401	0.05	-0.68	#432
Lower Burnt Fork	170102051304	0.37	-0.67	#710
Hughes Creek	170102050103	0.53	-0.66	#5688, #5793
Ambrose Creek	170102051502	0.50	-0.66	#428
Overwhich Creek	170102050104	0.23	-0.61	#5703
WF Bitterroot -Painted Rock Lake	170102050108	0	-0.55	#5660, #5662, #1130
Upper Burnt Fork	170102051303	0.11	-0.47	#312
Martin Creek	170102050402	0.14	-0.31	#726
Bitterroot River-Chaffin	170102050803	0.07	-0.28	#374, #716

<b>Drainage</b>	<b>6<sup>th</sup> Code Subwatershed</b>	<b>Miles of Road Within 100 feet of Streams</b>	<b>Difference between Alt. 4 and Alt. 2 (miles)</b>	<b>Road(s) Most Affected<sup>1</sup></b>
Creek				
WF Bitterroot -Mud Creek	170102050301	1.02	-0.26	#66E
Gird Creek	170102051004	0	-0.26	#1365
EF Bitterroot -Clifford Creek	170102050403	0.05	-0.24	#724
Slate Creek	170102050107	0.10	-0.23	#1133
Daly Creek	170102050901	0.20	-0.22	#5783
Threemile Creek	170102051503	0.24	-0.14	#640
Little West Fork	170102050203	0.04	-0.10	#5635
<b>Total</b>			<b>-33.09</b>	

<sup>1</sup>This is a partial listing of the roads affected by this alternative; the roads with the greatest effect in each subwatershed were listed. These roads are often lower in the subwatershed, and provide access to roads higher in the watershed. A closure on the roads listed may only affect segments of the road. For details, please refer to the maps of the alternatives, and the document “Changes between DEIS and FEIS” (Appendix H to the FEIS).

**Alternative 4** proposes to designate 3 miles of unauthorized routes on the MVUM. About 2 miles would be proposed to be designated as ATV trails seasonally; approximately 1 mile would be designated to be open yearlong. Several of the routes would connect existing roads.

No unauthorized trails for motorcycles would be proposed for designation in **Alternative 4**. All of the routes would be shown on the MVUM as no separate site-specific NEPA analysis would be required {Project File folder ‘unauthorized\_trails,’ Project File document UAT-005.pdf}.

Once unauthorized routes are designated, the Forest Service would be able to expend funds for maintenance and improvement, which are intended to ensure the integrity of travel routes. Consequently, conditions on the routes would improve, as ruts would be bladed, reducing erosion and sedimentation.

For a listing of the unauthorized routes proposed to be designated on the MVUM in **Alternative 4**, please refer to Appendix K to the FEIS.

In **Alternative 4**, motorized wheeled access to dispersed campsites would be permissible within 150 feet of both sides of the centerline of open roads and trails; the corridor would be extended to those sites identified on the maps of the alternative. Motorized wheeled access would be prohibited within 30 feet of any flowing stream, pond, lake, marsh or wetland. Decreasing this corridor to half the distance proposed in **Alternative 2** would reduce the number of existing campsites by about 16 percent, as most dispersed sites are located within 150 feet of designated routes (1999 Forest sampling of dispersed sites) {Project File folder ‘recreation,’ Project File document REC-055.pdf}. However, reducing the motorized wheeled access corridor decreases the number of miles of streams potentially affected by half; there are approximately 100 miles of streams on the Bitterroot National Forest within 150 feet of roads, and over 200 miles of stream

within 300 feet of roads. This would improve aquatic habitat in localized areas, but have a very minor affect at a larger scale.

The 30 foot setback from shorelines included in **Alternative 4** would have a very minor long-term positive effect relative to **Alternative 2**.

### **Over-Snow**

Over-snow vehicle use seldom disturbs soils or causes loss of ground cover or erosion, due to the layer of snow separating the machine from the ground. Snow plowing near-stream roads to get vehicles and snow machine trailers to trailheads has been an issue on other forests, but snow plowing near-stream roads was not proposed in this Travel Management Planning Project. For these reasons, no effects to fisheries are attributed to over-snow vehicle use, and they will not be discussed further as a fish and aquatic habitat effect. There would be no difference between alternatives for this activity.

### **Summary**

There would be little change in effects to the Fish and Aquatic Habitat resource with **Alternatives 1, 2, and 3**. **Alternative 1** would result in a reduction in the miles of roads within 100 feet of streams of less than 5 percent, compared to **Alternative 2**, which would result in the highest number of miles of open roads within 100 and 300 feet of streams. **Alternative 3** is practically identical to **Alternative 2**. However, **Alternative 4** would result in substantially improved conditions for fisheries, the result of an approximately 33 mile decrease (-50 percent) in roads within 100 feet of streams, compared to **Alternative 2**. Findings would be similar with respect to the miles of roads within 300 feet of streams.

The miles of open motorized trails near streams vary among the alternatives. Relative to **Alternative 2**, **Alternatives 1 and 4** decrease the amount of open motorized trail within 100 feet of streams by 35.3 miles (-51 percent) and 68.5 miles (-99 percent), respectively. In contrast, **Alternative 3** increases the amount of open motorized trail by 4.2 miles (+6 percent). With respect to the open motorized trails within 300 feet of streams, relative to **Alternative 2**, **Alternatives 1 and 4** decrease the amount by 80 miles (-47 percent) and 167.1 miles (-97.5 percent), respectively. In contrast, **Alternative 3** increases the amount of motorized trail by 14.9 miles (+9 percent).

With respect to the miles of open motorized trails within 100 and 300 feet of streams, **Alternative 3** would contain the highest number of miles, followed by **Alternative 2**, **Alternative 1**, and **Alternative 4**. However, the effects to fish and aquatic habitat from designated trails from any of the alternatives is minor relative to the effect of roads, due to the width and condition of the trails.

## **C. Cumulative Effects**

### **Geographic Boundaries**

The defined cumulative effects analysis area for the Fish and Aquatic Habitat resource includes lands within the Bitterroot watershed regardless of ownership or managing agency. This analysis area is appropriate to analyze any incremental effects from the actions of this project, in combination with past, present, and reasonably foreseeable activities, because effects of implementing travel planning decisions on the Bitterroot National Forest would be negligible to fish and aquatic habitat outside of this analysis area.

### **Activities within the Cumulative Effects Analysis Area**

The most devastating environmental effects to fish and aquatic habitat are not the direct effects of a particular action, but the combination of multiple actions over time (CEQ 1997). Past actions have substantially contributed to the existing condition for fish and aquatic habitat, which is described in Section 3.7.3 (Affected Environment). The construction of National Forest System roads, associated primarily with timber harvest projects, and their past, present, and reasonably foreseeable use, continue to contribute adverse effects to fish and aquatic habitat. The chronic nature of the impact of roads is particularly problematic to aquatic habitats. Road construction, use, and maintenance, and recreational use in some

areas, have simplified channels and destabilized stream banks resulting in bank erosion, loss of cover and shading, and the widening and filling of channels.

Appendix A to the FEIS describes past, present, and reasonably foreseeable forest and other activities which, when combined with the activities proposed in the Travel Management Planning Project, could potentially result in cumulative effects to fish and aquatic habitat. A “Worksheet for Consideration of Cumulative Effects to the Fisheries Resource” is located in the Project File {Project File document FISH-001.pdf}.

## **Summer**

Some forest activities have a negligible effect on fish and aquatic habitat for the following reasons:

- Ø The activity’s disturbance is too small and isolated to produce an effect
- Ø Project design features are applied to limit an activity’s effect to a negligible level

Examples of forest activities which, when carried out consistent with existing regulations, produce negligible cumulative effects to fish and aquatic habitat:

- Ø Personal Use Firewood Cutting (when setbacks from streams are followed)
- Ø Personal Use Christmas Tree Harvesting
- Ø Some Special Uses\Permits - Outfitter and Guide Activity
- Ø Some Public Uses - Hunting and Dispersed Recreation (nonmotorized)

There are other forest activities which result in cumulative effects to fish and aquatic habitat:

### ***Dewatering of Tributaries and the Bitterroot River***

During summer through early fall, dewatering occurs on several streams, mostly on private land, but several streams on National Forest System lands are also affected. Dewatering affects the amount of habitat and habitat quality. Habitat quality is affected because dewatered streams tend to be warmer and the streams’ connections with other streams or the river can be interrupted.

### ***Non-native, Nuisance, and Invasive Species***

Changes in water quality, which have been associated with road density and proximity to streams, can favor non-native species over native species. Roads also increase the chance of accidental or purposeful introduction of non-native or nuisance species by humans. Introduction of non-native fishes results in competition and hybridization with, and predation on, native fishes. These impacts are long-term and substantial.

Aquatic Nuisance Species are a serious problem in Montana. There are currently over 70 non-native aquatic species reported in the state, and more are expected to arrive.

Whirling disease may play a role in the increasing number of non-native brown trout. This parasitic disease affects native cutthroat trout more than non-native brown trout. Tubifex worms are the invertebrate hosts for the parasite. They live in sediments of streams, and thrive in areas with abundant fine sediment.

### ***Timber Harvest, Prescribed Burning, and Associated Activities***

Some of the historical timber harvest conducted on the Bitterroot National Forest (prior to the 1970s and the enactment of the National Environmental Policy Act (NEPA)) provided little protection for streams; tributary streambeds were used as yarding corridors, and large trees along streams were removed. Reduced habitat quality can still be attributed to logging and roads built for logging in some of these historically-logged areas. The current lower level of harvest is being conducted with stream protection as a primary consideration, and cutting and yarding of the logs generally has minimal effect on streams. However, log



hauling, when it occurs on roads of marginal quality or poor locations can result in negative cumulative effects (see Road and Trail Management, below).

### ***Road and Trail Management***

Maintenance and use of roads are chronic sources of erosion and sediment to the streams in the analysis area, especially when motorized use occurs in combination with storms and runoff events. Elevated levels of sediment in stream gravels pose a threat to native fish by reducing rearing habitat or entombing the eggs or fry within the gravels. Maintenance can loosen the road surface, accelerating the sediment that comes off the road during rain. Techniques, such as grading when the road has the correct amount of moisture, are common. Rolling after grading and using dust abatement can reduce the detrimental effects, but these procedures add to the cost of maintenance, and are often disregarded. The lack of road maintenance can also exacerbate poor road conditions. Well-maintained roads have a shape that can shed water and be more stable (less erosive). The miles of roads that the Bitterroot National Forest has been maintaining have decreased in the recent past commensurate with budgets, as well as several other factors. For the last decade, a focus of road maintenance has been on treating roads near streams using timing and affordable techniques that minimize roads' effects on the streams and water quality. For additional information, please refer to the Transportation resource, Section 3.1.3 B of Chapter 3.

Roads have and continue to allow access for the illegal harvest of large streamside trees. To maintain the open roadways near streams requires the removal of hazardous and fallen trees, which often compromises the complexity of the aquatic habitat.

Motorized and nonmotorized single-track trails can also negatively affect streams, but the degree of effect is determined more by environmental factors (e.g., slope and proximity to streams) than whether travel is motorized or nonmotorized. Trail slope, location, and width are key considerations for limiting disturbance to streams. The most erosive trails are prioritized for restoration or relocation. Trails are generally maintained so that they are a minor cumulative effect relative to the much larger contribution of the road system. For additional information, please refer to the water resources analysis, Section 3.6.3 F of Chapter 3.

Recreational use and traffic on the Bitterroot National Forest are expected to continue to increase as the Bitterroot Valley's population increases over the next century. Traffic and road maintenance are two components of road management that have the potential to influence sediment movement from forest roads (Grace and Clinton 2007). Since 2000, the elimination of fish passage barriers at culverts has been a focus of the Forest's Fisheries and Engineering programs: 80 culverts have been removed, or replaced by a bridge or with a suitable culvert, to accommodate aquatic organism passage to improve fish passage on the Forest and adjacent state and private lands.

Several present and reasonably foreseeable projects listed in Appendix A to the FEIS will decommission, store, or close system roads and "undetermined" status roads, resulting in a reduction on the miles of roads available for motorized use in the Fisheries and Aquatic Habitat analysis area. In the case of some "undetermined" status roads, they may be placed on the Forest's Transportation System if the project-specific travel analysis determines they are necessary for future management. The Darby Lumber Lands Watershed Improvement and Travel Management Project decision placed approximately 55 miles of closed roads into long-term storage, and decommissioned an additional 66 miles of roads. The Three Saddle Vegetation Management project will decommission approximately 9.5 miles of road, and place about 1.1 miles of road in long-term storage. The Como Forest Health Protection Project decision placed approximately 3.1 miles of undetermined roads in long-term storage, and will decommission about 3.5 miles of undetermined roads. The Meadow Vapor project will be proposing to decommission and place some roads in long-term storage. These projects will result in beneficial impacts to fisheries and aquatic habitat.

Decommissioning roads or placing them in long-term storage lowers the risk of erosion and sediment reaching streams. Decommissioning of roads on the Forest's Transportation System, by removing them from the landscape, would return these areas back to the productive land base, and allow for soil recovery through either active rehabilitation treatments or natural recovery.

Additionally, several culvert-replacement projects are ongoing on the Forest. National Environmental Policy Act planning has been completed for replacing 81 culverts that are barriers to fish. These projects are constructed, when feasible, to allow aquatic organisms (fish, amphibians, and aquatic invertebrates) year-round passage where roads cross streams resulting in beneficial effects to fish and other aquatic organisms. The timing of the implementation of these projects depends on available funding; {Project File document FISH-012.pdf} is a prioritized list of these projects.

### ***Cattle Grazing***

The effect of cattle grazing along streams on the Bitterroot National Forest is variable, ranging from negligible effects along many streams to intense effects along some sections of a few streams. Grazing can change the structure of streamside vegetation, reducing shade and increasing water temperature. It can compact soils and reduce the amount of streamside vegetation, allowing increased sedimentation of streams. Grazing can result in the trampling of redds (trout nests) reducing the recruitment of trout from one generation to the next. Cover can also be reduced by the trampling of streambanks which can result in fewer undercut streambanks and reductions in overhanging vegetation. Projects have recently been implemented on the Forest to fence cattle away from areas where there have been re-occurring impacts to streams that contain native fish. For additional information, please refer to the monitoring of cattle grazing summarized in annual Forest Plan Monitoring and Evaluation Reports in the section titled Riparian Area Condition, Item 22 {Project File folder 'forest plan and monitoring,' Project File documents FPMON-003.pdf to 025.pdf, and 030.pdf to 036.pdf}.

### ***Special Uses/Permits***

These include research studies, rock collecting or gravel pit operations, outfitters\guides, uses of Forest roads to access private lands, and several other activities. The effects, especially if they occur along streams on the Bitterroot National Forest, range from negligible-to-intense along some sections of few streams. Projects on the Bitterroot National Forest are limited by existing regulations and Forest Plan direction including INFISH.

### ***Recreational Fishing***

Harvest of fish species that are common is managed with regulations imposed by the State. Angling results in incidental injury and mortality to native and less common fishes, and some accidental harvest due to misidentification has also been shown to be a problem associated with fishing in Montana streams (Schmetterling and Long 1999).

### ***Wildfire Suppression***

Fire suppression activities have been known to have detrimental impacts to fisheries, such as accidental retardant applications to waterways. The impacts tend to be localized, sporadic, and difficult to predict.

### ***Activities on State and Private Lands***

State lands are scattered across the analysis area. Generally, state lands are managed similar to lands on the Bitterroot National Forest in regard to their avoidance of impacts on streams and riparian areas. They follow State of Montana Best Management Practices and Streamside Managements Zone Law and Rules (2006). The Bitterroot National Forest standards tend to be more restrictive in some ways, primarily due to INFISH, which does not apply to the state lands.

There are also many miles of private roads in the analysis area. Most private roads do not parallel streams because the topography allows roads in the developed valley-bottoms to run in the north/south or east/west

directions. There are non-Forest roads that parallel streams that have erosive areas that dramatically impact streams and aquatic habitat. Noteworthy examples where streams are affected by near-stream roads of various ownership include: Eightmile Creek (Road #601), Threemile Creek (Road #640, County Road #900), Ambrose Creek (Road #428), Burnt Fork Creek (Road #312, County Road #29), Willow Creek (Roads #364 and #969A), Skalkaho and Daly Creeks (State Highway #38), Sleeping Child Creek (County Road #8520), Rye and North Fork Rye Creeks (Roads #75 and #321, County Road #9101), East Fork of the Bitterroot (State Highway #93), West Fork (State Highway #473, County Road #9600), and Nez Perce Fork (Road #468).

### ***Recreation Maintenance***

Effects of maintenance of existing recreational facilities are limited due to the scope of the actions and mostly benign nature of the activities. Hazard tree removal does result in less wood available to fall into the floodplains and streams. The loss of woody debris to the channel can result in reductions in pool quantity and quality. The number of trees removed within a tree length of the stream channel is generally low in a given year, and the effect on the entire stream system is limited in the extent by the boundaries of developed recreation areas. Over several years, however, the cumulative effects occur, especially along the developed and popular dispersed sites.

Other recreation site maintenance, such as site hardening, parking lot maintenance, mowing, brushing outside of RHCAs, sign maintenance, fence repair, cleaning toilets, placing boulders as barriers, and garbage collection are considered activities with negligible negative effect to native fish. Dispersed recreation sites are not routinely maintained, and some have increased in size during the last decade. A lack of maintenance can be deleterious to the site and nearby streams.

### ***Invasive Plants Management***

Over the last few years, the magnitude of the weed eradication and control program has continued to grow in response to invasive plants infestations. A balance between the risks and benefits of various weed treatments to other National Forest System resources, including fisheries, has been evaluated (USDA Forest Service 2003b). Weed species are often poor at maintaining soil stability, and can result in increases of sediment in streams, so appropriate application of weed control measures is often indirectly and cumulatively beneficial to fisheries.

### ***Wildfires and Natural Disturbance Events***

Many native fish species have evolved with fire, and their long-term persistence is rarely an issue. Exceptions might be isolated populations of rare species, such as bull trout, when proactive management after the fire may be necessary. Even when populations are temporarily reduced or eliminated from some stream sections, re-colonization from refuges within the affected stream or from streams unaffected by the disturbance often restores populations within a few months or years.

Stream conditions following a disturbance may include increased water temperatures, increased sediment in substrates, and reduced channel stability. However, vegetation recovery within a few years or decades ameliorates these conditions.

### ***Over-Snow***

Over-snow vehicle use seldom disturbs soils or causes loss of ground cover or erosion, due to the layer of snow separating the machine from the ground. This would apply to roads, trails, and areas. There would be negligible cumulative effects to fish and aquatic habitat associated with personal use firewood cutting and Christmas tree harvesting, public use, and special uses/permits.

As many roads and trails would be snow-covered during the winter months, this would limit their use by motorized vehicles, both by the public and Forest Service personnel. Subsequently, forest management activities, including road and trail maintenance, recreation site maintenance, and invasive plants

management, as well as recreational fishing, would not occur or be limited. Cattle typically graze on allotments on National Forest System lands between May 15 and October 31; they would not be grazing during winter months.

Timber harvest projects to be implemented during the winter months would contain sale contract language regarding operating on frozen or snow-covered ground to prevent adverse effects to soils resulting in erosion and possible sedimentation. There would be negligible cumulative effects to fish and aquatic habitat.

### **Cumulative Effects from the Implementation of the Alternatives**

#### ***Alternative 1***

The present and reasonably foreseeable activities discussed above are likely to continue to have a cumulative effect on fish and aquatic habitat. These, in combination with the activities proposed in **Alternative 1**, would likely result in native fish populations with similar attributes as the existing condition (see 3.7.3 Affected Environment) and these are:

- Ø An improving trend in the quality of stream habitat for native fish in some subwatersheds, such as Threemile, Burnt Fork, Sleeping Child, and Overwhich Creeks.
- Ø Some degraded fish populations and aquatic habitats as a result of increasing human population growth and riparian and floodplain development (locations are unpredictable).
- Ø The legacy of the past century's road system and stream channel conditions would continue to impede significant improvements of most of the degraded aquatic habitats.
- Ø Westslope cutthroat trout would continue to be widespread through the drainages of Bitterroot National Forest, but the migratory component of their population would continue to be constrained by disconnected habitats (e.g. water diversions) and invasive species.
- Ø Similarly, bull trout conservation would be constrained by disconnected habitats and invasive species. The minor positive changes in the road network proposed in this project would likely be offset by the increased development on lands outside the National Forest system.
- Ø Watersheds that have low road density, such as those with Wilderness and roadless designations, would continue to be the aquatic strongholds.

#### ***Alternative 2***

The cumulative effect of doing nothing to improve the current condition, which is essentially what the No Action Alternative is, would be slightly more detrimental than **Alternative 1** and **Alternative 3**. This is because there would be no changes toward eliminating the unauthorized routes, providing relief from a few streamside roads, and dispersed camping would be slightly more detrimental, as no routes, off of which motorized wheeled access for dispersed camping occur, would be closed.

#### ***Alternative 3***

Cumulative effects in a few drainages would be dramatically worse than those in **Alternative 1**. For example, the cumulative effects of motorized wheeled access for dispersed camping, illegal fire wood cutting, road-related sediments, and other minor effects would combine to continually impact aquatic habitat in Burnt Fork Creek.

#### ***Alternative 4***

Cumulative effects in several drainages would have the potential to improve (Table 3.7- 5). Not only would there be a reduction in the amount of road use that has direct and indirect effects, but the long term cumulative effects of increased human populations on the Forest would decline. This is based on the reduced motorized access to dispersed camping sites, to firewood illegally taken from riparian areas, and motorized users partaking in other deleterious motorized use-related activities, such as fording streams and dumping trash.

At the Forest scale, there is a possibility of having measureable differences between the existing conditions' effects to aquatic habitat and the cumulative effect of **Alternative 4**. **Alternative 4** reduces the number of miles of roads within 100 feet of streams by approximately 50 percent, acts cumulatively with other projects that have occurred in the previous decade, such as replacing culverts that are barriers to movement, improving open road stability along streams, and stabilizing the legacy roads by decommissioning and storing roads.

#### **Cumulative Effects Finding**

There would be cumulative effects to the Fish and Aquatic Habitat resource from the past, present, and reasonably foreseeable activities listed above, including road and trail management; recreation maintenance; timber harvest, prescribed burning, and associated activities; dewatering; non-native and nuisance species introduction; special uses/permits; recreational fishing; cattle grazing; wildfire suppression; and activities on state and private lands in combination with the activities proposed in **Alternatives 1, 2, 3, and 4** during the summer months. There would not likely be any cumulative effects from the past, present, and reasonably foreseeable activities listed above, in combination with the activities proposed in **Alternatives 1, 2, 3, and 4**, during the winter months.

At the Forest scale there are extremely minor differences between the cumulative effects to aquatic habitat of **Alternatives 1, 2, and 3**.

Furthermore, the inclusion of the project design features listed in Table 2-19, in Chapter 2 of this FEIS, including Soil and Water Conservation Practices, and adhering to Region 1 Soil Quality Standards, in the proposed activities, as well as in Present and Reasonably Foreseeable Activities, will result in a reduction in adverse impacts to the Soil resource, with beneficial effects on fish and aquatic habitat.

It should be noted that implementing **Alternatives 1, 3, and 4** would reduce the cumulative effects of past activities because many unauthorized routes would no longer be available for motorized travel, and the potential for causing erosion and sediment production would be reduced.

### **3.7.5 CONSISTENCY WITH THE FOREST PLAN, LAWS, AND REGULATIONS**

The Travel Management Planning Project is essentially a planning effort, and does not create new ground disturbance. As such, consistency with existing regulation is a matter of incorporating various concerns into the planning effort. This has been done in all phases of the project.

#### **A. Bitterroot National Forest Plan**

Consistency with the Bitterroot National Forest forest-wide resource and management areas standards applicable to the Fish and Aquatic Habitat resource would be accomplished in the following ways:

The parts of the Forest Plan most pertinent to fish and aquatic habitat and INFISH are discussed below, with a summary of how they are addressed by the Travel Management Planning Project. It is clear that the Forest Plan, with its discussion of roads and recreation facilities in riparian areas, and INFISH, takes a strong and consistent view that roads and recreation impacts should be minimized in riparian areas, and that the Forest should demonstrate a reduction in impacts to these since 1987 and 1995, when the Forest Plan and INFISH were implemented, respectively.

#### **Forest-wide Management Standards:**

Soil and Water Conservation Practices will be a part of project design and implementation to ensure soil and water resource protection (USDA Forest Service 1987a, II-25).

#### **How addressed:**

Region 1 Soil and Water Conservation Practices applicable to travel management planning were included in the table of Project Design Features (Table 2-19) in Chapter 2 of the FEIS.

A fisheries biologist field reviewed existing site conditions on system routes and unauthorized routes with potential fisheries and aquatic habitat concerns in all alternatives {Project File folder 'field\_review\_notes\_fisheries,' Project File document FR-NOTES-FISH-001,002, and 003.pdf}. Utilizing this data, the fisheries biologist was able to determine necessary closures or modifications of routes to protect fish and aquatic habitat.

The habitat needs of sensitive species, as listed by the Regional Forester, will be considered in all project planning (USDA Forest Service 1987a, II-21).

How addressed:

A biological evaluation for westslope cutthroat trout and western pearlshell mussel, which are the sensitive aquatic species present in the Travel Management Planning Project analysis area, is included in Section D of Section 3.7.5 of this document.

Cutthroat trout populations will be used as an indicator of fisheries habitat changes (USDA Forest Service 1987a, II-20).

How addressed:

Westslope cutthroat trout is analyzed as a sensitive species in the biological evaluation presented in Section D of Section 3.7.5 of this document.

**Management Area Standards:**

***Management Area (MA) 3b***

One of the MA standards for 3b states “No developed or dispersed recreation facilities other than trails and trail bridges will be built,” while another states “Existing facilities will be rehabilitated to protect the riparian areas from human impact” (USDA Forest Service 1987a, III-23).

How addressed:

**Alternatives 1 and 3** include a proposal for 10 miles of new motorized trails (short connectors and a new trail). Of those, approximately 0.4 miles are within 100 feet of streams. The majority of the 0.4 miles are in upper Bunkhouse Creek. This section of Bunkhouse Creek is fishless, but contributes to the westslope cutthroat trout-bearing section of Bunkhouse Creek. Site-specific NEPA would look closely at this section, and any near-stream sections of proposed trails, and assign necessary design features to limit the potential for impacting the water and habitat. For these reasons, the proposed new routes are highly unlikely to affect fish and aquatic habitat. No other new developed or dispersed sites are proposed to be built in the riparian area. All alternatives would allow rehabilitation of existing undesirable sites after additional site-specific NEPA.

Alternatives vary by the emphasis for protection of riparian areas. Under **Alternative 2**, access to all the dispersed camping sites existing before the 2001 Tri-State Decision is emphasized, whereas **Alternative 4** emphasizes access to sites within 150 feet of open road, with exceptions. Therefore, **Alternative 4** is slightly more protective, and more aggressively addresses the intent of these standards. **Alternatives 1 and 3** fall between the **Alternatives 2 and 4** in their focus on meeting these standards.

**All alternatives** would be in compliance with applicable forest-wide and management areas Forest Plan standards.

**Alternatives 1 and 4** are consistent with the Forest Plan, Laws, and Regulations. They move the Forest toward meeting the objectives contained in INFISH, and closer to meeting the intent of the Endangered Species Act. However, the progress made by implementing **Alternative 1** would be very slight; **Alternative 4** makes the most progress, based on a 50 percent reduction in near-stream roads and the narrower corridor for motorized wheeled access to dispersed campsites. **Alternatives 2 and 3** are consistent with the Forest Plan, but provide practically no movement toward meeting the riparian and fish-

related objectives that have been set for the Forest, and unless modified, they would be unlikely to meet Section 7(a) (2) of the Endangered Species Act (see Section C below for supporting information).

## **B. INFISH Standards and Guidelines, and Objectives**

The following section describes how the standards and guidelines in INFISH were addressed in this project. For additional information, please refer to the list of standards and guidelines in INFISH Attachment A, pages A-6 to A-13 (USDA Forest Service 1995c).

**RF-1:** Cooperate with Federal, Tribal, State, and county agencies, and cost-share partners to achieve consistency in road design, operation, and maintenance necessary to achieve Riparian Management Objectives.

### How addressed:

The Bitterroot National Forest cooperated with the State of Montana and Ravalli County in regards to travel planning near their lands and roads. Please refer to the {Project File folder 'agency\_tribal\_coordination,' Project File documents AGENCY-001, 007, 009, 012, 015, and 020.pdf}. The effects of the Travel Management Planning Project on bull trout were detailed in the biological assessment {Project File document FISH-004.pdf}, which was completed and sent to the USFWS as part of the ESA consultation process. Consultation was finalized after receipt of the USFWS' biological opinion {Project File document FISH-011.pdf}.

**RF-2:** For each existing or planned road, meet the Riparian Management Objectives and avoid adverse effects to inland native fish by:

- a. Completing watershed analyses prior to construction of new roads or landings in Riparian Habitat Conservation Areas.
- b. Minimizing road and landing locations in Riparian Habitat Conservation Areas.
- c. Initiating development and implementation of a Road management Plan or a Transportation Management Plan. At a minimum, address the following items in the plan:
  1. Road design criteria, elements, and standards that govern construction and reconstruction.
  2. Road management objectives for each road.
  3. Criteria that govern road operation, maintenance, and management.
  4. Requirements for pre-, during, and post-storm inspections and maintenance.
  5. Regulation of traffic during wet periods to minimize erosion and sediment delivery and to accomplish other objectives.
  6. Implementation and effectiveness monitoring plans for road stability, drainage, and erosion control.
  7. Mitigation plans for road failures
- d. Avoiding sediment delivery to streams road the road surface.
  1. Outsloping of the roadway surface is preferred, except in cases where outsloping would increase sediment delivery to streams or where outsloping is infeasible or unsafe
  2. Route road drainage away from potentially unstable stream channels, fills, and hillslopes.
- e. Avoiding disruption of natural hydrologic flow paths.
- f. Avoiding sidcasting of soils or snow. Sidcasting of road material is prohibited on road segments within or abutting RHCAs in priority watersheds.

How addressed:

No new roads would be constructed in RHCAs. Table 3.7-1, and discussions above, detail the miles of open roads within RHCAs. A road management plan (CFR, Title 36, part 212.5(a)(1) also known as Travel Planning Subpart A) would be completed in the future. See Section 3.7.1 (Scope of Analysis and Analysis Methods). The decision regarding construction of new travel routes, the relocation of existing routes, or methods to close roads and trails would not be authorized in this document; that will require separate, site-specific NEPA analyses and decisions.

**RF-3** Determine the influence of each road on the Riparian Management Objectives. Meet Riparian Management Objectives and avoid adverse effects on inland native fish by:

- a. Reconstructing road and drainage features that do not meet design criteria or operation and maintenance standards, or that have been shown to be less effective than designed for controlling sediment delivery, or that retard attainment of Riparian Management Objectives, or does not protect priority watersheds from increased sedimentation.
- b. Prioritizing reconstruction based on the current and potential damage to inland native fish and their priority watersheds, the ecological value of the riparian resources affected, and the feasibility of options such as helicopter logging and road relocation out of Riparian Habitat Conservation Areas.
- c. Closing and stabilizing or obliterating, and stabilizing roads not needed for future management activities. Prioritize these actions based on the current and potential damage to inland native fish in priority watersheds, and the ecological value of the riparian resources affected.

How addressed:

The portion of RF-3c that addresses closing unneeded roads was partially met by reviewing of roads and selecting those that would be open or closed in each alternative. The review processes are discussed in {Project File folder ‘process,’ Project File document PROCESS-001.pdf}. The CFR, Title 36, part 212.5(a)(1) notes that the Responsible Official for each National Forest must identify the minimum road system needed for safe and efficient travel and for administration, utilization, and protection of National Forest System lands, incorporating a science-based roads analysis at the appropriate scale. Identifying a minimum road system could be very beneficial to fisheries and aquatic resources if the result is a less extensive road system that results in less fine sediment and other road associated disturbances to the Forest’s streams. However, Forest Service Manual (FSM) 7712 makes it clear that identifying the minimum road system for the National Forest System lands does not need to be done in conjunction with this travel planning project. Identifying and implementing a minimum road system on the Bitterroot National Forest will follow the national direction (FSH 7709.55, Chapter 20) for identifying unneeded roads by the end of 2015. Specifics treatments regarding reconstructing roads and their drainage features are not applicable to this project. See Section 3.7.1 (Scope of Analysis and Analysis Methods).

**RF-4:** Construct new, and improve existing, culverts, bridges, and other stream crossings to accommodate a 100-year flood, including associated bedload and debris, where those improvements would/do pose a substantial risk to riparian conditions. Substantial risk improvements include those that do not meet design and operation maintenance criteria, or that have been shown to be less effective than designed for controlling erosion, or that retard attainment of Riparian Management Objectives, or that do not protect priority watersheds from increased sedimentation. Base priority for upgrading on risk in priority watersheds and the ecological value of the riparian resources affected. Construct and maintain crossings to prevent diversion of streamflow out of the channel and down the road in the event of crossing failure.

How addressed:

Reconstructing roads and their drainage features is not applicable to this project. See Section 3.7.1 (Scope of Analysis and Analysis Methods).



**RF-5:** Provide and maintain fish passage at all road crossings of existing and potential fish –bearing streams

How addressed:

Providing fish passage at road crossings is not applicable to this project. See Section 3.7.1. {Project File document FISH-012.pdf} provides a summary of plans related to fish passage at road crossings.

**RM-1:** Design, construct, and operate recreation facilities, including trails and dispersed sites, in a manner that does not retard or prevent attainment of the Riparian Management Objectives and avoid adverse effects on inland native fish. Complete watershed analysis prior to construction of new recreation facilities in Riparian Habitat Conservation Areas within priority watersheds. For existing recreation facilities inside Riparian Habitat Conservation Areas, assure that the facilities or use of the facilities would not prevent attainment of Riparian Management Objectives or adversely affect inland native fish. Relocate or close recreation facilities where Riparian Management Objectives cannot be met or adverse effects on inland native fish cannot be avoided.

**RM-2:** Adjust dispersed and developed recreation practices that retard or prevent attainment of Riparian Management Objectives or adversely affect inland native fish. Where adjustment measures such as education, use limitations, traffic control devices, increased maintenance, relocation of facilities, and/or specific site closures are not effective in meeting Riparian Management Objectives and avoiding adverse effects on inland native fish, eliminate the practice or occupancy.

How addressed:

Relative to Alternative 2, the action alternatives would result in a minor positive effect on dispersed campsites and Riparian Management Objectives. This is a result of the prescribed 30-foot setback from the shoreline of any flowing stream, pond, lake, marsh, or wetland, and the closing of access to unidentified sites that are beyond 300 feet of the designated routes. Projects to rehabilitate, relocate, or close dispersed sites will require separate, site-specific NEPA analyses and decisions.

Relative to Alternative 2, the miles of open motorized trails near streams were nearly unchanged in Alternative 3, were reduced in Alternative 1, and even more substantially in Alternative 4 (Figure 3.7-2).

**INFISH Riparian Management Objectives (RMOs)**

The original riparian management objectives (RMOs) in INFISH were established as region-wide habitat parameters that describe good fish habitat. The habitat features assessed in RMOs include the amount of large wood, pool frequency, water temperature, and channel width- to-depth ratio.

How addressed:

These RMOs for stream channel conditions provided the criteria against which attainment or progress toward attainment of riparian goals has been measured. Over time it has become clear that the numerical objectives in INFISH (the original RMOs) are generally unattainable, even in the reference streams. Even though they may be unattainable, the RMOs are still discussed in this document because the concepts that streams should reflect an attainable level of habitat characteristics and water quality are still valid. Part 4 of the biological assessment for bull trout {Project File document FISH-004.pdf} details the factors in Alternative 1 that may affect attainment of the RMOs. The Forest would move toward meeting these objectives, but the progress made by Alternatives 1 and 3 are very slight as the change in the number of open versus closed roads, and other features in the action alternatives, are very small relative to the size of the road network in the analysis area. Alternative 4 would do substantially more to address the attainment of the RMOs.

## C. Endangered Species Act

Section 7(a)(2) of the Endangered Species Act declares that all Federal agencies shall seek to conserve endangered and threatened species, and shall utilize their authorities in furtherance of the purposes of this Act. To this end, Forest Service Manual (FSM) 2670.12), USDA Directives, and Departmental Regulation (9500-4) direct the Forest Service to:

- a. Manage habitats for all existing native and desired nonnative plants, fish, and wildlife species in order to maintain at least viable populations of such species.
- b. Conduct activities and programs to assist in the identification and recovery of threatened and endangered species, and
- c. Avoid actions which may cause a species to become threatened or endangered.

### How addressed:

A biological assessment (BA) is required by the Endangered Species Act of 1973 (as amended) to determine whether proposed actions may affect listed species (bull trout) and designated critical habitat. The BA for the Travel Management Planning Project was completed in January 2010, and was sent to the U.S. Fish and Wildlife Service (USFWS) for their review {Project File document FISH-004.pdf}. The USFWS replied to the BA with a biological opinion (BO) in February, 2012 {Project File document FISH-011.pdf}.

**Alternative 1**, with the Forest's commitments made during the ESA consultation process (Biological Opinion for Bull Trout and Bull Trout Critical Habitat), meets the level of conservation required by the Endangered Species Act {Project File document FISH-011.pdf}. **Alternatives 2 and 3** do not effectively assist in the recovery of the threatened bull trout. Therefore, **Alternatives 2 and 3** would be unlikely to meet the level of activity needed to proceed through ESA consultation with the USFWS. **Alternative 4** would substantially address the recovery of the threatened bull trout.

All alternatives would be in compliance with applicable State and Federal direction regarding fish and aquatic habitat.

## D. Biological Evaluation for Aquatic Species

The westslope cutthroat trout and western pearlshell mussel are the sensitive aquatic species that occur in the Travel Management Planning Project analysis area. The biological evaluation for these species has been incorporated into the effects analysis (USFS Region 1 letter 2670/1950, August 17, 1995). The following paragraphs summarize the determination of effects on these two species. The level of impact is relative to the existing condition.

### Alternatives 1, 2, and 3

**Alternatives 1, 2, and 3** would have “no impact” on westslope cutthroat trout or western pearlshell mussel (WPS) or their habitats relative to the existing condition at the Forest scale. **Alternative 2** would be likely to maintain habitat and populations at or near their existing condition. One noteworthy difference among these three alternatives is that **Alternative 1** is more beneficial to westslope cutthroat trout by improving small portions of eight subwatersheds (please refer to Table 3.7-3) because it would result in closing roads that parallel streams. None of the proposed road closure would be expected to affect the known populations of WPS mussel.

The reason that **Alternative 1** is expected to produce negligible changes at the Forest scale is because it would reduce the amount of roads in the near-stream areas by less than five percent, and similar to **Alternative 2**, the distance allowed for motorized wheeled access to dispersed campsites is permissible within 300 feet of roads and trails. **Alternatives 1 and 3** include an exception for mapped dispersed campsites greater than 300 feet from a route, and motorized wheeled access is prohibited within 30 feet of

any flowing stream, pond, lake, marsh or wet area. In **Alternative 2**, unauthorized routes that were established prior to 2001 would be legal to travel. For this reason, and because of the ongoing implementation of INFISH, **Alternative 2** was not given the “may impact” determination for effects to sensitive aquatic species.

If any of these alternatives are implemented, this project is unlikely to change population viability from the current conditions at both the local population scale and Forest-wide.

#### **Alternative 4**

The determination for **Alternative 4** is “Beneficial Impact;” the extent and degree of the impact is substantial to the habitat on the Bitterroot National Forest lands in the affected subwatersheds. Population viability however, is unlikely to change from the current depressed condition at both the local population scale and elsewhere on the Forest. The reason to expect a negligible improvement in population viability is that cumulative effects would continue to depress native aquatic species. The cumulative effects most troublesome are the effects of non-native species, and the overwhelming effects of water withdrawal and degraded conditions on non-National Forest System lands. These negative cumulative effects may be overcome with partnerships focused on watershed scale improvements.

The rationale for this determination is detailed in the “Direct and Indirect Effects” and “Cumulative Effects” sections for **Alternative 4**. In summary, **Alternative 4** would reduce the miles of open roads near streams by approximately one-half, and the miles of open trails near streams by about one hundred percent; restrict motorized wheeled access to dispersed campsites to about half of that permitted in **Alternatives 1, 2, and 3** (permissible within 150 feet of open roads and trails); and prohibit motorized wheeled access for dispersed camping within 30 feet of any flowing stream, pond, lake, marsh, or wetland. Dispersed camp sites are often located along fish-bearing streams. The effect of motorized access for dispersed camping and dispersed camping on the riparian soil and vegetation ranges from negligible-to-intense. The indirect effect is that the undesignated trails to these dispersed sites are commonly used for illegal wood cutting, OHV use, and trash dumping. Therefore, reducing the number of streams potentially-affected by the web of dispersed sites is beneficial.

**Alternative 4** has a much higher likelihood of reducing sediment to cutthroat and WPS mussel habitat than **Alternatives 1, 2, and 3**. Relative to **Alternative 2**, several short, but important, lengths of streams in a dozen subwatersheds would be improved as a result of a road closure (Table 3.7-5).

***Table 3.7- 6: Aquatic Sensitive Species Biological Evaluation Summary of Effects***

Species	Status	Alts. 1, 2, & 3	Alt. 4
Westslope Cutthroat Trout	Sensitive	No Impact	Beneficial Impact
Western Pearlshell Mussel	Sensitive	No Impact	Beneficial Impact

Prepared by: /s/**Robert Brassfield**  
BNF North Zone Fisheries Biologist

Date: December, 2012

### **3.7.6 CHANGES BETWEEN DRAFT EIS AND FINAL EIS**

- Ø Minor grammatical edits were made to correct typographical errors and to improve readability.
- Ø Sections 3.7.1 (Scope of Analysis and Analysis Methods), 3.7.2 (Regulatory Framework), 3.7.3 (Affected Environment), 3.7.5 A (Bitterroot National Forest Plan), and 3.7.5 D (Biological

Evaluation for Aquatic Species). Edited to include the Western pearshell mussel, which was added to the Forest Service’s sensitive species list by the Regional Forester.

- Ø Section 3.7.4 (Environmental Consequences) was rewritten to improve clarity and organization. Added Figures 3.7-2 and 3.7-3, and Tables 3.7-3, 3.7-4, and 3.7-5.
- Ø Section 3.7.4 B (Direct and Indirect Effects). Tables 3.7-1 and 3.7-2 reflect changes to the miles of motorized routes in each alternative. The number of miles of near-stream roads in Alternative 2 (No Action) in the FEIS are less than those shown in the DEIS because the National Forest System roads that run through private lands were excluded from analysis in the FEIS. This more accurately represents the political boundaries of reasonable changes for travel management planning. It is very unlikely that changes to travel management would occur on roads that are the primary access to extensive parcels of private lands. Eightmile Creek, and the road along it (#601), is the best example. There are several miles of near-stream National Forest System road along Eightmile Creek, but the entire near-stream road is going through private lands, and the Travel Management Planning Project would not affect this route because of the need for private landowners to access their lands. The effect on the outcome of the analysis is minor because the discussion simply shifts from direct and indirect effect to the cumulative effects discussion, specifically with respect to Activities on State and Private Lands.
- Ø Section 3.7.4 B (Direct and Indirect Effects). In the discussion of effects of **Alternative 1**, the effect of the changes in management to roads in eight subwatersheds is highlighted. The National Hydrography Dataset (NHD) is the surface water dataset used by geographic information systems (GIS). It contains features such as lakes, ponds, streams, rivers, and canals. These data are designed to be used in general mapping and in the analysis of surface-water. There are a few differences between NHD map and field observations. These differences are consistent among alternatives so they have minimal effect on the comparison of alternatives in the analysis. Where differences are found that may be important at a more local scale, such as a sixth level subwatershed, there are verbal descriptions to explain those discoveries. An example is that the Road #311 closely parallels a perennial tributary of Rye Creek, but it did not show on the maps and data as a road within 300 feet of a stream. This is explained in the text of the report.
- Ø Section 3.7.4 C (Cumulative Effects). The introductory section was rewritten for clarification. Recreational fishing, and non-native, nuisance, and invasive species were added to the cumulative effects discussion. A note was added that a “Worksheet for Consideration of Cumulative Effects to the Fisheries Resource is available in the Project File. Effects associated with over-snow vehicle use were added.
- Ø Section 3.7.5 (Consistency with Forest Plan, Laws, and Regulations). Rewritten to provide clarity and organization.
- Ø Section 3.7.5 B (INFISH Standards Guidelines, and Objectives). Under Riparian Management Objectives (RMOs), Part 4 of the biological assessment for bull trout {Project File document FISH-004.pdf} was referenced to provide details on the factors of the Travel Management Planning Project that may affect attainment of the RMOs.
- Ø Section 3.7.5 C (Endangered Species Act). The citation of the section of the Endangered Species Act was corrected from “section 2” to “Section 7(a) (2),” and wording for Alternatives 2 and 3 was changed from “would not meet...” to “would be unlikely to meet...” to reflect the recognition that consultation with USFWS would be needed to conclusively determine whether an alternative would meet the intent of ESA.